

The Resource-Constrained Growth Model(TM)

Scaling Infrastructure When Capital Is Limited

A strategic model for delivering large-scale infrastructure projects in capital-scarce environments. Based on analysis of 50+ successful projects across emerging Asian markets.

Purpose

The Resource-Constrained Growth Model(TM) helps governments and sponsors in capital-scarce environments decide how to sequence and structure large infrastructure programmes so that limited funding delivers maximum cumulative value. Drawing on analysis of more than fifty projects across emerging Asian markets, it guides choices about prioritisation, phasing, partnership, local capacity and operational efficiency.

Components

1. Strategic Prioritisation

Ruthless focus on highest-impact initiatives with clear ROI

2. Phased Delivery

Modular architecture allowing incremental value delivery

3. Partnership Leverage

Public-private collaboration and risk-sharing structures

4. Local Capacity Building

Developing talent and supply chain within the local ecosystem

5. Operational Efficiency

Lean processes, automation, and waste elimination

How to use it

Start with strategic prioritisation: rank candidate projects by measurable impact per unit of capital, and be willing to cancel attractive projects that fail the test. Move to phased delivery: break the chosen programme into modules that each produce standalone value, so that a funding pause does not strand unfinished megastructure. Structure partnership leverage next: use public-private arrangements to transfer risks to parties best able to carry them, but protect the public balance sheet from open-ended guarantees. Invest in local capacity building from the first phase - local contractors, engineers and supply chains reduce cost and foreign-exchange exposure on later phases. Finally, enforce operational efficiency: standardised designs, lean processes and automation compound savings across phases. Review the portfolio annually, re-sequencing as capital availability and impact evidence change.

Worked example

The Sydney Opera House, examined by PIA, demonstrates what happens when this model is ignored - and how parts of it were improvised in response. Strategic prioritisation failed at the outset: construction began in 1959 from a competition sketch with no settled engineering solution for the roof shells, and cost estimates bore little relation to the eventual outcome - the project ultimately cost around A\$102 million against an original estimate of about A\$7 million. Phased delivery was impossible in the original design; the building was an indivisible whole, so funding pauses simply extended a fifteen-year construction. Where the model was effectively adopted was in financing: the New South Wales government funded the project through a

dedicated state lottery, an early form of alternative funding structure, and avoided conventional debt. The lesson cuts both ways: creative financing can rescue a project, but no funding mechanism substitutes for prioritisation, phaseability and technical definition before commitment.

Limitations

The model is derived largely from successful projects, which introduces survivorship bias - projects that failed despite similar strategies are underrepresented in the evidence base. Its five components interact, and phased delivery in particular is not available for inherently indivisible assets. Political economy also constrains it: ruthless prioritisation is technically sound but often politically unachievable, as projects carry constituencies that spreadsheets do not capture.

Relationship to PMOS

PMOS is being designed to support the model at portfolio level: capital-constrained sequencing, phase-level value tracking and partnership risk registers are planned modules. These capabilities do not exist in a released product today; the model is currently published as an analytical framework within PIA's research output.

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This document is the canonical reference version of the framework.